## Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

## **Listing of Claims:**

1. (currently amended) An isomer, enantiomer, diastereoisomer, or tautomer of a compound, represented by formula I:

$$R^{2} \xrightarrow{A} M^{1} M^{2} Z$$

$$M^{4} \xrightarrow{M^{3}} Z$$

$$(I)$$

wherein

---- represents either a single or a double bond;

**B** is -N- and **A** is  $=CR^1$ —or—N-; or

B is =C- and A is O, S or NR<sup>1</sup>;

is selected from the group consisting of: H, (C<sub>1-6</sub>)alkyl optionally substituted with: halogen, OR<sup>11</sup>, SR<sup>11</sup> or N(R<sup>12</sup>)<sub>2</sub>, wherein R<sup>11</sup> and each R<sup>12</sup> is independently H, (C<sub>1-6</sub>)alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>1-6</sub>)alkyl-aryl or (C<sub>1-6</sub>)alkyl-Het, said aryl or Het optionally substituted with R<sup>160</sup>; or both R<sup>12</sup> are covalently bonded together and to the nitrogen to which they are both attached to form a 5, 6 or 7-membered saturated heterocycle;

the group  $-C(=Y^1)-Z$  is covalently linked to either  $M^2$  or  $M^3$ ,

 $M^1$  is  $CR^{4a}$ ,  $M^2 \text{ or } M^3, \text{ when not linked to } -C(=Y^1)-Z, \text{ is } CR^5,$   $M^4 \text{ is } CR^{4b},$ 

and in addition one or two of the groups selected from M⁴, M², M³ and M⁴ may also be N, with the proviso that the group M² or M³ to which —C(=Y⁴)-Z is linked is a C atom,

Y<sup>1</sup> is O or S;

- Z is defined as  $NR^{N2}$ - $SO_2$ - $R^C$  or  $NR^{N3}$ - $SO_2$ - $N(R^{N2})R^{N1}$ , wherein  $R^C$ ,  $R^{N1}$  or any heterocycle formed by  $R^{N1}$  and  $R^{N2}$  is optionally substituted with  $R^{60}$ ;
- $R^2$  is selected from: halogen or  $R^{21}$ , wherein  $R^{21}$  is aryl or **Het**, said  $R^{21}$  is optionally substituted with  $R^{150}$ :
- R³ is selected from (C<sub>1-6</sub>)alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>1-3</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl, (C<sub>5-7</sub>)cycloalkenyl, (C<sub>1-3</sub>)alkyl-(C<sub>5-7</sub>)cycloalkenyl, (C<sub>6-10</sub>)bicycloalkyl, (C<sub>1-3</sub>)alkyl-(C<sub>6-10</sub>)bicycloalkyl, (C<sub>6-10</sub>)bicycloalkyl, (C<sub>6-10</sub>)bicycloalkenyl, HCy or (C<sub>1-3</sub>)alkyl-HCy, wherein HCy is a saturated or unsaturated 4 to 7-membered heterocyclic group with 1 to 3 heteroatoms selected from O, S and N; said alkyl, cycloalkyl, cycloalkenyl, bicycloalkyl, bicycloalkenyl, HCy and alkyl-HCy being optionally substituted with from 1 to 4 substituents selected from: a) halogen; b) (C<sub>1-6</sub>)alkyl optionally substituted with:
  - 1 to 3 substituents selected from halogen;
  - $OR^{31}$  or  $SR^{31}$  wherein  $R^{31}$  is H,  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl or  $(C_{1-6})$ alkyl- $(C_{3-7})$ cycloalkyl; or
  - $N(R^{32})_2$  wherein each  $R^{32}$  is independently H,  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl or  $(C_{1-3})$ alkyl- $(C_{3-7})$ cycloalkyl; or both  $R^{32}$  are covalently bonded together and to the nitrogen to which they are attached to form a 5, 6 or 7-membered saturated heterocycle;
  - c)  $OR^{33}$  or  $SR^{33}$  wherein  $R^{33}$  is H,  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl or  $(C_{1-3})$ alkyl- $(C_{3-7})$ cycloalkyl;
  - d)  $N(\mathbf{R}^{35})_2$  wherein each  $\mathbf{R}^{35}$  is independently H,  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl or  $(C_{1-3})$ alkyl- $(C_{3-7})$ cycloalkyl; or both  $\mathbf{R}^{35}$  are covalently bonded together and to the nitrogen to which they are attached to form a 5, 6 or 7-membered saturated heterocycle;

 $R^{4a}$ ,  $R^{4b}$ ,  $R^5$  each are independently H or defined as  $R^{150}$ ;

R<sup>60</sup> is defined as 1 to 4 substituents independently selected from:

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- 1 to 3 substituents selected from halogen;
- one of each substituent selected from: OPO $_3$ H, NO $_2$ , cyano, azido, C(=NH)NH $_2$ , C(=NH)NH(C $_{1-8}$ )alkyl or C(=NH)NHCO(C $_{1-8}$ )alkyl, SO $_3$ H; and
- 1 to 3 substituents selected from:
- a) (C<sub>1-6</sub>) alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>3-7</sub>) spirocycloalkyl optionally containing 1 or 2 heteroatoms selected from N, O and S; (C<sub>2-6</sub>)alkenyl, (C<sub>2-8</sub>)alkynyl, (C<sub>1-6</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl, all of which optionally being substituted with **R**<sup>150</sup>;
- b) OR°;
- c) OC(O)R<sup>o</sup>;
- d)  $SR^0$ ,  $SO_2R^c$ ,  $SO_2N(R^{N2})R^{N1}$ ,  $SO_2N(R^{N2})C(O)R^c$ ,  $CONR^{N3}SO_2N(R^{N2})R^{N1}$ , or  $CONR^{N2}SO_2R^c$ :
- e)  $N(R^{N2})R^{N1}$ ,  $N(R^{N2})COOR^{C}$ ,  $N(R^{N2})SO_{2}R^{C}$  or  $N(R^{N1})OR^{O}$ ;
- f)  $N(R^{N2})COR^{C}$ ;
- g)  $N(R^{N3})CON(R^{N2})R^{N1}$ ;
- h) N(R<sup>N3</sup>)COCOR<sup>C</sup>, N(R<sup>N3</sup>)COCOOR<sup>O</sup>, N(R<sup>N3</sup>)COCON(R<sup>N2</sup>)OR<sup>O</sup>, or N(R<sup>N3</sup>)COCON(R<sup>N2</sup>)R<sup>N1</sup>;
- i) COR<sup>o</sup>;
- j) COORO;
- k)  $CON(R^{N2})R^{N1}$ ;
- aryl, Het, (C<sub>1-4</sub>)alkyl-aryl or (C<sub>1-4</sub>)alkyl-Het, all of which optionally being substituted with R<sup>150</sup>;

wherein said R<sup>N1</sup>, R<sup>C</sup> and/or R<sup>O</sup> are optionally substituted with R<sup>150</sup> as defined,

R<sup>150</sup> is defined as 1 to 4 substituents independently selected from:

- 1 to 3 substituents selected from halogen;
- one of each substituent selected from: OPO $_3$ H, NO $_2$ , cyano, azido, SO $_3$ H C(=NH)NH $_2$ , C(=NH)NH(C $_{1-6}$ )alkyl or C(=NH)NHCO(C $_{1-6}$ )alkyl; and
- 1 to 3 substituents selected from:
- a) (C<sub>1-6</sub>) alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>3-7</sub>)spirocycloalkyl optionally containing 1 or 2 heteroatoms selected from N, O and S; (C<sub>2-6</sub>)alkenyl, (C<sub>2-8</sub>)alkynyl, (C<sub>1-3</sub>) alkyl-(C<sub>3-7</sub>)cycloalkyl, all of which optionally substituted with R<sup>160</sup>;
- b) OR<sup>o</sup>;
- c)  $OC(O)R^{O}$ ;
- d)  $SR^{0}$ ,  $SO_{2}R^{C}$ ,  $SO_{2}N(R^{N2})R^{N1}$  or  $SO_{2}N(R^{N2})C(O)R^{C}$ ;
- e)  $N(R^{N2})R^{N1}$ ,  $N(R^{N2})COOR^{C}$ ,  $N(R^{N2})SO_2R^{C}$  or  $N(R^{N1})OR^{O}$ ;
- f)  $N(R^{N2})COR^{C}$ ;
- g)  $N(R^{N3})CON(R^{N2})R^{N1}$ ;

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- h)  $N(R^{N3})COCOR^{C}$ ,  $N(R^{N3})COCOOR^{O}$ ,  $N(R^{N3})COCON(R^{N2})OH$ ,  $N(R^{N3})COCON(R^{N2})O(C_{1-4})$ alkyl or  $N(R^{N3})COCON(R^{N2})R^{N1}$ ;
- i) CORO;
- j) COORO;
- k) tetrazole, triazole,  $CONR^{N2}SO_2R^C$ ,  $CONR^{N3}-SO_2N(R^{N2})R^{N1}$  or  $CON(R^{N2})R^{N1}$ ; wherein said  $R^{N1}$ ,  $R^C$  and/or  $R^O$  are optionally substituted with  $R^{160}$  as defined;

R<sup>160</sup> is defined as 1, 2 or 3 substituents independently selected from:

- 1, 2 or 3 fluorine substituents; and
- one of each substituent selected from tetrazole, triazole, chlorine, bromine, iodine, CN, nitro, (C<sub>1-4</sub>)alkyl, OCF<sub>3</sub>, SCF<sub>3</sub>, CF<sub>3</sub>, COOR<sup>161</sup>, SO<sub>3</sub>H, SR<sup>161</sup>, SO<sub>2</sub>R<sup>163</sup>, OR<sup>161</sup>, N(R<sup>162</sup>)<sub>2</sub>, SO<sub>2</sub>N(R<sup>162</sup>)<sub>2</sub>, SO<sub>2</sub>NR<sup>162</sup>COR<sup>162</sup>, NR<sup>162</sup>SO<sub>2</sub>R<sup>163</sup>, -NR<sup>161</sup>-CO-COOR<sup>161</sup>, -NR<sup>161</sup>-CO-CO(NR<sup>162</sup>)<sub>2</sub>, -CONR<sup>161</sup>SO<sub>2</sub>R<sup>c</sup>, CONR<sup>161</sup>-SO<sub>2</sub>N(R<sup>162</sup>)<sub>2</sub> or -SO<sub>2</sub>-NR<sup>161</sup>-COR<sup>c</sup>, NR<sup>162</sup>COR<sup>162</sup> or CON(R<sup>162</sup>)<sub>2</sub>, wherein R<sup>161</sup>, R<sup>163</sup> and each R<sup>162</sup> is independently (C<sub>1-4</sub>)alkyl, (C<sub>3-7</sub>)cycloalkyl or (C<sub>1-3</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl; and R<sup>161</sup> and each R<sup>162</sup> may each independently also be H; or both R<sup>162</sup> are covalently bonded together and to the nitrogen to which they are attached to form a 5, 6 or 7-membered saturated heterocycle;
- $R^{O}$ ,  $R^{C}$  are independently defined as (C<sub>1-6</sub>)alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>1-4</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl, (C<sub>2-6</sub>)alkenyl, aryl, **Het**, (C<sub>1-4</sub>)alkyl-aryl, or (C<sub>1-4</sub>)alkyl-**Het**; or  $R^{O}$  is also optionally defined as H.
- $R^{N1}$  is H,  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl,  $(C_{1-4})$ alkyl- $(C_{3-7})$ cycloalkyl,  $(C_{2-6})$ alkenyl, aryl, Het,  $(C_{1-4})$ alkyl-aryl,  $(C_{1-4})$ alkyl-Het; and
- $R^{N2}$ ,  $R^{N3}$ ,  $R^{N4}$  are independently H,  $CH_3$ ,  $(C_{2-6})$ alkyl,  $(C_{3-6})$ cycloalkyl,  $(C_{1-4})$ alkyl- $(C_{3-6})$ cycloalkyl; all of which being optionally substituted with halogen, carboxy or  $(C_{1-6})$ alkoxycarbonyl; and/or wherein said alkyl, cycloalkyl or alkylcycloalkyl is optionally substituted with hydroxy,  $(C_{1-6})$ alkyl,  $(C_{1-6})$ alkoxy, amino, -NH $(C_{1-4})$ alkyl and/or -N( $(C_{1-4})$ alkyl)<sub>2</sub>; or

in the case

- a) of a group  $N(R^{N2})R^{N1}$  the substituents  $R^{N2}$  and  $R^{N1}$ ; or
- b) of a group NR<sup>N3</sup>-N(R<sup>N2</sup>)R<sup>N1</sup> the substituents R<sup>N3</sup> and R<sup>N1</sup>, or R<sup>N2</sup> and R<sup>N1</sup>; may be covalently bonded together to form a 4-, 5-, 6- or 7-membered saturated or unsaturated N-containing heterocycle or a 8-, 9-, 10- or 11-membered N-containing

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heterobicycle, each optionally having additionally from 1 to 3 heteroatoms selected from O, N, and S;

wherein **Het** is defined as a 4-, 5-, 6- or 7-membered heterocycle having 1 to 4 heteroatoms selected from O, N and S, or a 8-, 9-, 10- or 11-membered heterobicycle having 1 to 5 heteroatoms selected from O, N and S;

or a salt thereof.

- 2. (currently amended) The compound according to claim 1, wherein
- ---- represents either a single or a double bond;

B is -N- and A is CR1 or =N-; or

B is =C- and A is O, S or NR<sup>1</sup>;

is selected from the group consisting of: H, (C<sub>1-6</sub>)alkyl optionally substituted with: halogen, OR<sup>11</sup>, SR<sup>11</sup> or N(R<sup>12</sup>)<sub>2</sub>, wherein R<sup>11</sup> and each R<sup>12</sup> is independently H, (C<sub>1-6</sub>)alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>1-6</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl, (C<sub>1-6</sub>)alkyl-aryl or (C<sub>1-6</sub>)alkyl-Het, said aryl or Het optionally substituted with R<sup>160</sup>; or both R<sup>12</sup> are covalently bonded together and to the nitrogen to which they are both attached to form a 5, 6 or 7-membered saturated heterocycle;

the group  $-C(=Y^1)-Z$  is covalently linked to either  $M^2$  or  $M^3$ ,

M<sup>1</sup> is CR<sup>4a</sup> , one of M<sup>2</sup> and M<sup>3</sup> is CR<sup>5</sup>, M<sup>4</sup> is CR<sup>4b</sup>,

and in addition one or two of the groups selected from M<sup>4</sup>, M<sup>2</sup>, M<sup>3</sup> and M<sup>4</sup> may also be N, with the proviso that the group M<sup>2</sup> or M<sup>3</sup> to which C(=Y<sup>4</sup>)-Z is linked is an C atom,

Y<sup>1</sup> is O or S;

Z is defined as  $NR^{N2}$ - $SO_2$ - $R^C$ , wherein  $R^C$  is optionally substituted with  $R^{60}$ ;

 $R^2$  is selected from: halogen or  $R^{21}$ , wherein  $R^{21}$  is aryl or **Het**, said  $R^{21}$  is optionally substituted with  $R^{150}$ :

R³ is selected from (C<sub>1-6</sub>)alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>1-3</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl, (C<sub>5-7</sub>)cycloalkenyl, (C<sub>1-3</sub>)alkyl-(C<sub>5-7</sub>)cycloalkenyl, (C<sub>6-10</sub>)bicycloalkyl, (C<sub>1-3</sub>)alkyl-(C<sub>6-10</sub>)bicycloalkyl, (C<sub>6-10</sub>)bicycloalkenyl, (C<sub>6-10</sub>)bicycloalkenyl, HCy or (C<sub>1-3</sub>)alkyl-HCy, wherein HCy is a saturated or unsaturated 4 to 7-membered heterocyclic group with 1 to 3 heteroatoms selected from O, S and N; said alkyl, cycloalkyl, cycloalkenyl, bicycloalkyl, bicycloalkenyl, HCy and alkyl-HCy being optionally substituted with from 1 to 4 substituents selected from: a) halogen;

- b) (C<sub>1-6</sub>)alkyl optionally substituted with:
  - $OR^{31}$  or  $SR^{31}$  wherein  $R^{31}$  is H, (C<sub>1-6</sub>alkyl), (C<sub>3-7</sub>)cycloalkyl or (C<sub>1-8</sub>alkyl-(C<sub>3-7</sub>)cycloalkyl; or
  - $N(R^{32})_2$  wherein each  $R^{32}$  is independently H,  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl or  $(C_{1-3})$ alkyl- $(C_{3-7})$ cycloalkyl; or both  $R^{32}$  are covalently bonded together and to the nitrogen to which they are attached to form a 5, 6 or 7-membered saturated heterocycle;
- c)  $OR^{33}$  or  $SR^{33}$  wherein  $R^{33}$  is H,  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl or  $(C_{1-3})$ alkyl- $(C_{3-7})$ cycloalkyl;
- d)  $N(R^{35})_2$  wherein each  $R^{35}$  is independently H,  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl or  $(C_{1-3})$ alkyl- $(C_{3-7})$ cycloalkyl; or both  $R^{35}$  are covalently bonded together and to the nitrogen to which they are attached to form a 5, 6 or 7-membered saturated heterocycle;

R<sup>4a</sup>, R<sup>4b</sup>, R<sup>5</sup> each are independently H or defined as R<sup>150</sup>;

 $\mathbf{R}^{\mathbf{60}}$  is defined as 1 to 4 substituents independently selected from:

- 1 to 3 substituents selected from halogen;
- one of each substituent selected from: OPO $_3$ H, NO $_2$ , cyano, azido, C(=NH)NH $_2$ , C(=NH)NH(C $_{1-6}$ )alkyl or C(=NH)NHCO(C $_{1-6}$ )alkyl, SO $_3$ H; and
- 1 to 3 substituents selected from:
- a) (C<sub>1-6</sub>) alkyl, (C<sub>3-7</sub>)cycloalkyl, C<sub>3-7</sub> spirocycloalkyl optionally containing 1 or 2 heteroatom selected from N, O and S; (C<sub>2-6</sub>)alkenyl, (C<sub>2-8</sub>)alkynyl, (C<sub>1-6</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl, all of which optionally being substituted with  $\mathbf{R}^{150}$ ;
- b) OR<sup>o</sup>;
- c) OC(O)RO;

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- d)  $SR^0$ ,  $SO_2R^C$ ,  $SO_2N(R^{N2})R^{N1}$ ,  $SO_2N(R^{N2})C(O)R^C$  or  $CONR^{N2}SO_2R^C$ ;
- e)  $N(R^{N2})R^{N1}$ ,  $N(R^{N2})COOR^{C}$  or  $N(R^{N2})SO_{2}R^{C}$ ;
- f)  $N(R^{N2})COR^{C}$ ;
- g)  $N(R^{N3})CON(R^{N2})R^{N1}$ ;
- h) N(R<sup>N3</sup>)COCOR<sup>C</sup>, N(R<sup>N3</sup>)COCOOR<sup>O</sup> or N(R<sup>N3</sup>)COCON(R<sup>N2</sup>)R<sup>N1</sup>;
- i) CORO;
- j) COOR<sup>o</sup>;
- k) CON(R<sup>N2</sup>)R<sup>N1</sup>;
- I) aryl, **Het**, (C<sub>1-4</sub>alkyl)aryl or (C<sub>1-4</sub>alkyl)**Het**, all of which optionally being substituted with R<sup>150</sup>:

wherein said R<sup>N1</sup>, R<sup>C</sup> and/or R<sup>O</sup> are optionally substituted with R<sup>150</sup> as defined,

# R<sup>150</sup> is defined as 1 to 4 substituents independently selected from:

- 1 to 3 substituents selected from halogen;
- one of each substituent selected from:  $OPO_3H$ ,  $NO_2$ , cyano, azido,  $C(=NH)NH_2$ ,  $C(=NH)NH(C_{1-6})$ alkyl or  $C(=NH)NHCO(C_{1-6})$ alkyl; and
- 1 to 3 substituents selected from:
- a) (C<sub>1-6</sub>) alkyl, (C<sub>3-7</sub>)cycloalkyl, C<sub>3-7</sub> spirocycloalkyl optionally containing 1 or 2 heteroatoms selected from N, O and S; (C<sub>2-6</sub>)alkenyl, (C<sub>2-8</sub>)alkynyl, (C<sub>1-3</sub>) alkyl-(C<sub>3-7</sub>)cycloalkyl, all of which optionally substituted with R<sup>160</sup>;
- b) OR<sup>0</sup>;
- c) OC(O)R<sup>o</sup>;
- d)  $SR^0$ ,  $SO_2R^C$ ,  $SO_2N(R^{N2})R^{N1}$  or  $SO_2N(R^{N2})C(O)R^C$ ;
- e)  $N(R^{N2})R^{N1}$ ,  $N(R^{N2})COOR^C$  or  $N(R^{N2})SO_2R^C$ ;
- f)  $N(R^{N2})COR^{C}$ ;
- g)  $N(R^{N3})CON(R^{N2})R^{N1}$ ;
- N(R<sup>N3</sup>)COCOR<sup>C</sup>, N(R<sup>N3</sup>)COCOOR<sup>O</sup> or N(R<sup>N3</sup>)COCON(R<sup>N2</sup>)R<sup>N1</sup>;
   wherein R<sup>N1</sup> is as defined or OH, OAlkyl;
- i) COR°;
- j) COOR<sup>o</sup>;
- k) tetrazole or CON(R<sup>N2</sup>)R<sup>N1</sup>;

wherein said R<sup>N1</sup>, R<sup>C</sup> and/or R<sup>O</sup> are optionally substituted with R<sup>160</sup> as defined;

# R<sup>160</sup> is defined as 1, 2 or 3 substituents independently selected from:

- 1, 2 or 3 fluorine substituents; and
- one of each substituent selected from tetrazole, chlorine, bromine, iodine, CN, nitro, C<sub>1.4</sub>alkyl, CF<sub>3</sub>, COOR<sup>161</sup>, SO<sub>3</sub>H, SR<sup>161</sup>, SO<sub>2</sub>R<sup>163</sup>, OR<sup>161</sup>, N(R<sup>162</sup>)<sub>2</sub>, SO<sub>2</sub>N(R<sup>162</sup>)<sub>2</sub>,

 $SO_2NR^{162}COR^{162}$ ,  $NR^{162}SO_2R^{163}$ ,  $NR^{162}COR^{162}$  or  $CON(R^{162})_2$ , wherein  $R^{161}$ ,  $R^{163}$  and each  $R^{162}$  is independently ( $C_{1-4}$ )alkyl, ( $C_{3-7}$ )cycloalkyl or ( $C_{1-3}$ )alkyl-( $C_{3-7}$ )cycloalkyl; and  $R^{161}$  and each  $R^{162}$  may each independently also be H; or both  $R^{162}$  are covalently bonded together and to the nitrogen to which they are attached to form a 5, 6 or 7-membered saturated heterocycle;

- $R^{O}$ ,  $R^{C}$  are independently defined as  $(C_{1-6})$ alkyl,  $(C_{3-6})$ cycloalkyl,  $(C_{1-4})$ alkyl- $(C_{3-6})$ cycloalkyl,  $(C_{2-6})$ alkenyl, aryl, Het,  $(C_{1-4})$ alkyl-aryl,  $(C_{1-4})$ alkyl-Het;
- $R^{N1}$  is H,  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl,  $(C_{1-4})$ alkyl- $(C_{3-6})$ cycloalkyl,  $(C_{2-6})$ alkenyl, aryl, Het,  $(C_{1-4})$ alkyl-Het; or
- R<sup>N2</sup>, R<sup>N3</sup>, R<sup>N4</sup> are independently H, CH<sub>3</sub>, (C<sub>2-6</sub>alkyl), (C<sub>3-6</sub>)cycloalkyl, (C<sub>1-4</sub>)alkyl-(C<sub>3-6</sub>)cycloalkyl; all of which being optionally substituted with halogen, carboxy or C<sub>1-6</sub>-alkoxycarbonyl; and/or wherein said alkyl, cycloalkyl or alkylcycloalkyl is optionally substituted with hydroxy, C<sub>1-6</sub>-alkyl, C<sub>1-6</sub>-alkoxy, amino, -NH(C<sub>1-4</sub>-alkyl) and/or -N(C<sub>1-4</sub>-alkyl)<sub>2</sub>; and

in the case

- a) of a group N(R<sup>N2</sup>)R<sup>N1</sup> the substituents R<sup>N2</sup> and R<sup>N1</sup>; or
- b) of a group NR<sup>N3</sup>-N(R<sup>N2</sup>)R<sup>N1</sup> the substituents R<sup>N3</sup> and R<sup>N1</sup>, or R<sup>N2</sup> and R<sup>N1</sup>; may be covalently bonded together to form a 4-, 5-, 6- or 7-membered saturated or unsaturated N-containing heterocycle or a 8-, 9-, 10- or 11-membered N-containing heterobicycle each may have additionally from 1 to 3 heteroatoms selected from O, N, and S, wherein said heterocycle or heterobicycle is optionally substituted as defined;

wherein **Het** is defined as a 4-, 5-, 6- or 7-membered heterocycle having 1 to 4 heteroatoms selected from O, N and S, or a 8-, 9-, 10- or 11-membered heterobicycle having 1 to 5 heteroatoms selected from O, N and S;

or a salt thereof.

3. (currently amended) The compound according to claim 1 selected from the group of formulas I.1 to I.5 and I.2

$R^{2}$ $R^{3}$ $M^{1}$ $M^{2}$ $M^{3}$ $Z$	1.1
$R^{2}$ $M^{1}$ $M^{2}$ $M^{2}$ $M^{3}$ $Z$	1.2
$ \begin{array}{c c}  & M^{1} \\  & M^{2} \\  & M^{3} \end{array} $	1.3
$ \begin{array}{c c}  & M^{1} \\  & M^{2} \\  & M^{4} \\  & M^{3} \end{array} $	1.4
$ \begin{array}{c c}  & & & & & & & & & \\  & & & & & & & & &$	1.5

wherein  $\mathbf{R^1}$ ,  $\mathbf{R^2}$ ,  $\mathbf{R^3}$ ,  $\mathbf{Y^1}$ ,  $\mathbf{Z}$ ,  $\mathbf{M^1}$ ,  $\mathbf{M^2}$ ,  $\mathbf{M^3}$  and  $\mathbf{M^4}$  are defined as in claim 1.

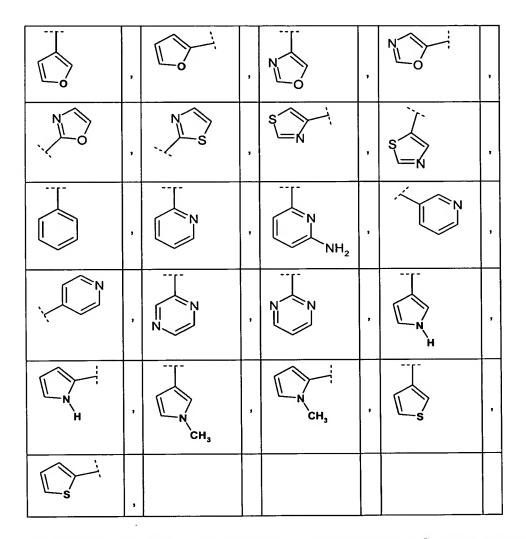
- 4. (original) The compound according to claim 1, wherein  $\mathbf{R}^1$  is selected from the group consisting of: H and  $(C_{1-6})$ alkyl.
- 5. (original) The compound according to claim 4, wherein  $\mathbf{R}^1$  is H, CH<sub>3</sub>, ethyl, or isobutyl.

- 6. (original) The compound according to claim 5, wherein R<sup>1</sup> is H or CH<sub>3</sub>.
- 7. (original) The compound according to claim 6, wherein R<sup>1</sup> is CH<sub>3</sub>.
- 8. (original) The compound according to claim 1, wherein Y<sup>1</sup> is O.
- 9. (original) The compound according to claim 1, wherein Z is  $NR^{N3}$ - $SO_2$ - $N(R^{N2})R^{N1}$ , wherein  $R^{N1}$  or any heterocycle formed by  $R^{N1}$  and  $R^{N2}$  is optionally substituted with  $R^{60}$ , and wherein  $R^{N3}$ ,  $R^{N2}$ ,  $R^{N1}$  and  $R^{60}$  are defined as in claim 1.
- 10. (original) The compound according to claim 1, wherein Z is NR<sup>N2</sup>-SO<sub>2</sub>-R<sup>C</sup>, wherein R<sup>C</sup> is optionally substituted with R<sup>60</sup>, and wherein Het, R<sup>N2</sup>, R<sup>C</sup> and R<sup>60</sup> are defined as in claim 1.
- 11. (original) The compound according to claim 10, wherein **Z** is NH-SO<sub>2</sub>-**R**<sup>c</sup>, wherein **R**<sup>c</sup> is selected from the group consisting of (C<sub>1-6</sub>)alkyl, (C<sub>3-6</sub>)cycloalkyl, (C<sub>1-3</sub>)alkyl-(C<sub>3-6</sub>)cycloalkyl, (C<sub>2-6</sub>)alkenyl, phenyl, naphthyl, **Het**, (C<sub>1-3</sub>)alkyl-phenyl, (C<sub>1-3</sub>)alkyl-naphthyl, (C<sub>1-3</sub>)alkyl-**Het**, wherein said alkyl, cycloalkyl, alkyl-cycloalkyl, alkenyl, phenyl, naphthyl, **Het**, alkyl-phenyl, alkyl-naphthyl, or alkyl-**Het**, are all optionally substituted with 1 to 4 substituents selected from **R**<sup>60</sup>, wherein **R**<sup>60</sup> and **Het** are defined as in claim 10.
- 12. (original) The compound according to claim 11, wherein **Z** is NH-SO<sub>2</sub>-R<sup>c</sup>, wherein R<sup>c</sup> is selected from the group consisting of methyl, ethyl, n-propyl, i-propyl, cyclopropyl, cyclopentyl, cyclopentyl, cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl, pyrrolidine, piperidine, morpholine, thiomorpholine, piperazine, phenyl, naphthyl, benzyl, thiophene, furan, pyrrole, imidazole, pyrazole, oxazole, isoxazole, thiazole, pyridazine, pyrimidine, pyrazine, diazepine, azepine, quinoline, isoquinoline, benzofuran, benzothiophene, benzothiazole, purine, pteridine,

B][1,3]thiazole
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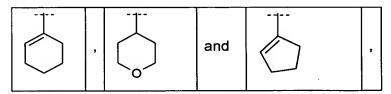
all of which are optionally substituted with 1 to 3 substituents selected from  $R^{60}$ , wherein  $R^{60}$  is defined as in claim 11.

13. (original) The compound according to claim 1, wherein  $R^2$  is  $R^{21}$ , wherein  $R^{21}$  is phenyl or **Het** selected from the group of formulas



and wherein said  $R^{21}$  is unsubstituted or substituted with  $R^{150}$ , being defined as in claim 1.

- 14. (original) The compound according to claim 1, wherein  $R^2$  is  $R^{21}$ , wherein  $R^{21}$  is defined as in claim 1, and wherein  $R^{21}$  is optionally substituted with 1, 2 or 3 substituents selected from:
  - 1 to 3 substituents selected from halogen;
  - one of each substituent selected from: NO2, cyano, azido; and
  - 1 to 2 substituents selected from:
  - a) (C<sub>1-4</sub>)alkyl or (C<sub>1-4</sub>)alkoxy, both optionally substituted with OH, O(C<sub>1-4</sub>)alkyl, SO<sub>2</sub>(C<sub>1-4</sub>)alkyl), 1 to 3 halogen atoms, amino, NH(C<sub>1-4</sub>)alkyl) or N((C<sub>1-4</sub>)alkyl)<sub>2</sub>;
  - b) NR<sup>111</sup>R<sup>112</sup> wherein both R<sup>111</sup> and R<sup>112</sup> are independently H, (C<sub>1-4</sub>)alkyl, or R<sup>112</sup> is (C<sub>3-7</sub>)cycloalkyl, (C<sub>1-3</sub>)alkyl(C<sub>3-7</sub>)cycloalkyl, phenyl, benzyl; or both R<sup>111</sup> and R<sup>112</sup> are covalently bonded together and to the nitrogen to which they are attached to form a nitrogen-containing heterocycle, each of said alkyl, cycloalkyl, alkylcycloalkyl, phenyl and benzyl, being optionally substituted with halogen or:
    - $OR^{2h}$  or  $N(R^{2h})_2$ , wherein each  $R^{2h}$  is independently H,  $(C_{1-4})$ alkyl, or both  $R^{2h}$  are covalently bonded together and to the nitrogen to which they are attached to form a nitrogen-containing heterocycle;
  - c) NHCOR<sup>117</sup> wherein  $R^{117}$  is  $(C_{1-4})$ alkyl,  $O(C_{1-4})$ alkyl or  $O(C_{3-7})$ cycloalkyl; and
  - e)  $CONH_2$ ,  $CONH(C_{1.4})$ alkyl),  $CON((C_{1.4})$ alkyl)<sub>2</sub>.
- 15. (original) The compound according to claim 1, wherein  $\mathbb{R}^3$  is selected from  $(C_{3-7})$  cycloalkyl,  $(C_{5-7})$  cycloalkenyl,  $(C_{6-10})$  bicycloalkyl,  $(C_{6-10})$  bicycloalkenyl, or  $\mathbb{H}^3$  wherein said groups are unsubstituted or mono- or disubstituted by halogen, cyano, nitro, hydroxy,  $(C_{1-4})$  alkyl and/or  $\mathbb{O}$ - $(C_{1-4})$  alkyl, wherein the alkyl groups may be fluorinated.
- **16.** (original) The compound according to claim 15, wherein **R**<sup>3</sup> is cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl or cycloheptyl, or a group selected from



wherein all said groups are unsubstituted or substituted by fluorine, (C1.3)alkyl or CF3.

- 17. (original) The compound according to claim 16, wherein  $\mathbb{R}^3$  is cyclopentyl or cyclohexyl.
- 18. (original) The compound according to claim 1 wherein  $R^{4a}$ ,  $R^{4b}$ ,  $R^5$  each are independently H, hydroxy, halogen, cyano, nitro, carboxyl,  $(C_{1-4})$ alkyl,  $CF_3$ ,  $(C_{1-4})$ alkoxy,  $-O_1$  ( $C_{3-7}$ )cycloalkyl,  $-O_2$  ( $C_{1-3}$ )alkyl- $(C_{3-7})$ cycloalkyl,  $-O_3$  ( $C_{1-3}$ )alkyl-aryl,  $-O_3$  ( $C_{1-3}$ )alkyl-Het,  $NR^{N1}R^{N2}$ ,  $COR^0$ ,  $NR^{N2}COR^0$ ,  $CONR^{N2}R^{N1}$ , or  $NR^{N3}CONR^{N1}R^{N2}$ ; wherein Het,  $R^0$ ,  $R^0$ ,  $R^{N1}$ ,  $R^{N2}$ ,  $R^{N3}$  and  $R^{160}$  are as defined in claim 1; and wherein all said alkyl groups, including alkoxy, may be mono-, di- or trisubstituted by fluorine or mono-substituted by chlorine or bromine.
- 19. (original) The compound according to claim 18 wherein  $R^c$ ,  $R^o$  and  $R^{N1}$  are independently of each other H,  $(C_{1-4})$ alkyl, aryl,  $(C_{1-3})$ alkyl-aryl; wherein aryl is defined as phenyl optionally substituted with  $R^{160}$ , wherein  $R^{160}$  is defined as in claim 18; and wherein all said alkyl groups may be mono-, di- or trisubstituted by fluorine or monosubstituted by chlorine or bromine; and wherein  $R^{N2}$  and  $R^{N3}$  are independently H or methyl.
- 20. (original) The compound according to claim 18 wherein R⁴a, R⁴b, R⁵ each are independently H, hydroxy, halogen, cyano, nitro, methyl, CF₃, methoxy, carboxy, amino, -NMe₂, -CONH₂, -NHCONH₂, -CO-NHMe, -NHCONHMe, -CO-NMe₂ or -NHCONMe₂.
- (original) The compound according to claim 20 wherein R<sup>4a</sup>, R<sup>4b</sup>, R<sup>5</sup> each are
   H, methyl or methoxy.
- 22. (original) The compound according to claim 1 wherein  $\mathbb{R}^{4a}$  is H or methyl.
- 23. (original) The compound according to claim 1 wherein at least two of the substituents selected from R<sup>4a</sup>, R<sup>4b</sup>, R<sup>5</sup> are H.

- 24. (original) The compound according to claim 1, wherein R<sup>60</sup> is each defined as 1 to 4 substituents independently selected from:
  - 1 to 3 substituents selected from halogen;
  - one of each substituent selected from: NO2, cyano, azido; and
  - 1 to 3 substituents selected from:
  - a) (C<sub>1-4</sub>) alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>2-4</sub>)alkenyl, (C<sub>2-4</sub>)alkynyl, (C<sub>1-3</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl, all of which optionally being substituted with  $\mathbf{R}^{150}$ ;
  - b) OR<sup>o</sup>;
  - e)  $N(R^{N2})R^{N1}$ ;
  - f)  $N(R^{N2})COR^{C}$ ;
  - j) COOR<sup>o</sup>;
  - k)  $CON(R^{N2})R^{N1}$ ;
  - I) phenyl, Het, (C<sub>1-3</sub>alkyl)phenyl or (C<sub>1-3</sub>alkyl)Het; wherein Het is selected from furan, tetrahydrofuran, thiophene, tetrahydrothiophene, tetrahydropyran, pyridinyl, azetidine, pyrrolidine, piperidine, piperazine, morpholine, thiomorpholine, homopiperidine and homopiperazine, all of which optionally being substituted with R<sup>150</sup>;

wherein said  $R^{N1}$ ,  $R^{C}$  and/or  $R^{O}$  are optionally substituted with  $R^{150}$  as defined, and  $R^{150}$ ,  $R^{N1}$ ,  $R^{N2}$ ,  $R^{C}$  and  $R^{O}$  are defined as in claim 1.

25. (original) The compound according to claim 1, wherein

R<sup>150</sup> is defined as 1 to 4 substituents independently selected from:

- 1 to 3 fluorine-substituents;
- one of each substituent selected from: chlorine, bromine, iodine, NO<sub>2</sub>, cyano, azido; and
- 1 to 3 substituents selected from:
- a) (C<sub>1-3</sub>) alkyl, CF<sub>3</sub>, (C<sub>3-6</sub>)cycloalkyl, (C<sub>1-3</sub>) alkyl-(C<sub>3-6</sub>)cycloalkyl, all of which optionally substituted with **R**<sup>160</sup>;
- b) OR<sup>o</sup>:
- e)  $N(R^{N2})R^{N1}$ ;
- f)  $N(R^{N2})COR^{C}$ ;
- j) COOR<sup>o</sup>;
- k)  $CON(R^{N2})R^{N1}$ :

wherein said  $R^{N1}$ ,  $R^{C}$  and/or  $R^{O}$  are optionally substituted with  $R^{160}$  as defined; and  $R^{160}$ ,  $R^{N1}$ ,  $R^{N2}$ ,  $R^{C}$  and  $R^{O}$  are defined as in claim 1.

26. (original) The compound according to claim 1, wherein

R<sup>160</sup> is defined as 1, 2 or 3 substituents independently selected from:

- 1, 2 or 3 fluorine substituents; and
- one of each substituent selected from chlorine, bromine, iodine, CN, nitro, methyl, trifluoromethyl, ethyl, n-propyl, i-propyl, COOH, COOCH<sub>3</sub>, OH, OCH<sub>3</sub>, OCF<sub>3</sub>, NH<sub>2</sub>, NHCH<sub>3</sub>, N(CH<sub>3</sub>)<sub>2</sub>, SO<sub>2</sub>NH<sub>2</sub>, SO<sub>2</sub>NHCOCH<sub>3</sub>, NHCOCH<sub>3</sub> or CONH<sub>2</sub>, CONHCH<sub>3</sub> and CON(CH<sub>3</sub>)<sub>2</sub>.
- 27. (original) The compound according to claim 1, wherein
  - R<sup>o</sup>, R<sup>c</sup> are independently defined as (C<sub>1-4</sub>)alkyl, (C<sub>3-6</sub>)cycloalkyl, (C<sub>1-3</sub>)alkyl-(C<sub>3-6</sub>)cycloalkyl, phenyl, benzyl, **Het**, (C<sub>1-3</sub>)alkyl-**Het**; all of which are optionally substituted as defined; and R<sup>o</sup> may also be H;
  - R<sup>N1</sup> is H, (C<sub>1-4</sub>)alkyl, (C<sub>3-6</sub>)cycloalkyl, (C<sub>1-3</sub>)alkyl-(C<sub>3-6</sub>)cycloalkyl, phenyl, benzyl, phenylethyl, **Het**, (C<sub>1-3</sub>)alkyl-Het; wherein said alkyl, cycloalkyl, alkyl-cycloalkyl, phenyl, benzyl, phenylethyl, **Het** and alkyl-**Het** are optionally substituted as defined; or
  - R<sup>N2</sup>, R<sup>N3</sup>, R<sup>N4</sup> are independently H, methyl, ethyl, n-propyl, i-propyl, cyclopropyl, cyclopropyl, cyclopropylmethyl; all of which being optionally substituted with fluorine, carboxy or methoxycarbonyl; and/or wherein said ethyl, n-propyl or i-propyl is optionally substituted with hydroxy, methyl, methoxy, amino, -NH(CH<sub>3</sub>) and/or -N(CH<sub>3</sub>)<sub>2</sub>; and

in the case

- a) of a group  $N(R^{N2})R^{N1}$  the substituents  $R^{N2}$  and  $R^{N1}$  or
- b) of a group NR<sup>N3</sup>-N(R<sup>N2</sup>)R<sup>N1</sup> the substituents R<sup>N3</sup> and R<sup>N1</sup> or R<sup>N2</sup> and R<sup>N1</sup> may be covalently bonded together to form a 5-, 6- or 7-membered saturated heterocycle which may have additionally one heteroatom selected from O, N, and S, wherein said heterocycle is optionally substituted as defined;

wherein Het is defined as in claim 1.

- 28. (currently amended) Use of A method of inhibiting HCV polymerase activity comprising contacting an HCV polymerase with a compound of the formula I according to claim 1, or a pharmaceutically acceptable salt thereof, as an inhibitor of HCV polymerase.
- 29. (currently amended) Use of A method of inhibiting the RNA dependent RNA polymerase activity of the enzyme NS5B, encoded by HCV, comprising contacting the enzyme NS5B, encoded by HCV, with a compound of the formula I according to claim 1, or a pharmaceutically acceptable salt thereof., as an inhibitor of RNA dependent RNA polymerase activity of the enzyme NS5B, encoded by HCV.
- **30.** (currently amended) Use of A method of inhibiting the replication of the Hepatitis C virus comprising contacting the Hepatitis C virus with a compound of the formula I according to claim 1, or a pharmaceutically acceptable salt thereof, as an inhibitor of HCV replication.
- **31.** (original) A method of treating or preventing HCV infection in a mammal, comprising administering to the mammal an effective amount of a compound of formula I according to claim 1, or a pharmaceutically acceptable salt thereof.
- **32.** (currently amended) A method of treating or preventing HCV infection in a mammal, comprising administering to the mammal an effective amount of <u>a combination of</u> a compound of formula I according to claim 1, or a pharmaceutically acceptable salt thereof, in <del>combination</del> with another antiviral agent.
- 33. (original) A pharmaceutical composition for the treatment or prevention of HCV infection, comprising an effective amount of a compound of formula I according to claim 1, or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier.
- **34.** (currently amended) The composition according to claim 33 further comprising a therapeutically effective amount of one or more <u>other</u> antiviral agents.

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- **35.** (original) The composition according to claim 34, wherein said antiviral agent is selected from: ribavirin and amantadine.
- **36.** (original) The composition according to claim 34 wherein the antiviral agent is an other anti-HCV agent.
- 37. (currently amended) The pharmaceutical composition according to claim 36, wherein the other anti-HCV agent is an immunomodulatory agent, in particular selected from  $\beta$ ,  $\delta$ - $\gamma$ , and  $\omega$  interferon.
- **38.** (currently amended) A composition according to claim 36, wherein said the other anti-HCV agent is another inhibitor of HCV polymerase.
- **39.** (original) The composition according to claim 36, wherein the other anti-HCV agent is an inhibitor of HCV NS3 protease.
- **40.** (original) The composition according to claim 36, wherein the other anti-HCV agent is an inhibitor of another target in the HCV life cycle.
- 41. (original) A composition according to claim 40, wherein said inhibitor of another target in the HCV life cycle is an agent that inhibits a target selected from HCV helicase, HCV NS2/3 protease and HCV IRES.
- 42. (cancelled)
- **43.** (new) A compound of the following formula:

$$R^2$$
 $R^3$ 

wherein A, B, R<sup>2</sup>, R<sup>3</sup> and Z are as defined in the following table:

Cpd. #	A	В	R²	R³	Z
101	-N(CH₃)-	=C-			HZ SSO SSO SSO SSO SSO SSO SSO SSO SSO SS
114	-N(CH₃)-	=C-			, N-S
115	-N(CH₃)-	=C-			N'S
116	-N(CH₃)-	=C-			, N-s
117	-N(CH₃)-	=C-			HZ N
118	=C(CH₃)-	-N-			H N S
119	=C(CH <sub>3</sub> )-	-N-		7	N S CH3

Cpd. #	A	В	R²	R³	Z
123	-N(CH₃)-	=C-			O CH <sub>3</sub>
124	-NH-	=C-			
125	-NH-	=C-			O CH3
126	-N(CH₃)-	=C-			
127	=C(CH <sub>3</sub> )-	-N-	NH <sub>2</sub>	5	O O OMe N S OMe
129	-N(CH₃)-	=C-	=======================================		N-S

# **44.** (new) A compound of the following formula:

wherein  $R^2$ ,  $R^3$ ,  $R^{4a}$ , p and Z are as defined in the following table, wherein p designates the C-atom on the benzene ring to which the group C(=O)-Z is bonded:

Cpd. #	R <sup>2</sup>	R³	R <sup>4a</sup>	р	Z
201		7	-OCH₃	2	O O N/S H CH <sub>3</sub>
202			-OCH₃	2	H N N N N N N N N N N N N N N N N N N N
203			-H	3	O N N CH <sub>3</sub>
204			†	3	